ALVARADO

Supervisor 4000
Full Panel Glass Barrier Optical Turnstile

Technical Specifications

Dimensions	Cabinet Length:	74“ (1880 mm)
	Cabinet Height:	39” 1003 mm)
	Cabinet Width:	22” (559 mm)
	Clear Passage Width:	22” (559 mm) or 36” (914 mm)
Drive	Motorized	
Materials	Base:	Carbon steel. Powder coated RAL 9017, *Solar Black* (*matte*).
	Internal Frame:	Welded steel. The frames house the motors, barrier arm mechanisms, controller boards and optical sensor components and are configurable for use as center cabinet frames in multi turnstile installations.
	End Panels:	Formed and welded stainless steel. All exterior welds are ground smooth and polished. Available in #4 satin or powder coated finish.
	Side Panels:	Formed and welded stainless steel. All exterior welds are ground smooth and polished. Available in #4 satin or powder coated finish.
	Lid:	Livingstone® acrylic resin, Starry Night Black.
	Barriers:	36” (low); 70” (high).
Passage Modes	The SU4000 offers the following user operating modes:	
	Free Passage:	All patrons are allowed to pass. The barriers open when the first sensor in the various arrays is activated and the barriers remain open until the passing patron, or subsequent patrons, either pass through or back out of the turnstiles.
	Card Access :	The barrier remain open at all times allowing the SU4000 to function as a barrier free optical turnstile.
	Turnstile or Lane Closed	No passage is allowed. Valid electronic credentials are ignored.
Operating Modes	The SU4000 offers the following user configurable operational modes when the turnstile is in “Card Access” Mode :	
	Normally Closed:	The barriers are closed, securing the turnstile. Upon receipt of an authorization signal from an access control system the barriers retract open clearing the passageway to allow a single passage in the authorized direction. The barrier return to the closed position after the user has passed through the turnstile or the time frame allowed for an entry to occur has expired.
	Barrier Disabled:	The barriers remain open at all times allowing the SU4000 to function as a barrier free optical turnstile.

Control Mechanism

The SU4000 utilizes tandem motorized retracting barriers to control access. Movement of each barrier is accomplished through a mechanism connected directly to a motor drive unit working in conjunction with a bi-directional encoder. A controller provides accurate positioning and movement of the barriers.

Optical safety sensors prevent the barriers from closing on an obstruction. Should the movement of the barriers be obstructed, the unit detects the encumbrance and reverses the barriers away from the obstruction to the fully open position.

Method of Operation

Upon receipt of a valid card signal from an access control system, GateKeeper turnstile control software, or push button device, the barriers will open and allow a single user to pass through the turnstile in the direction requested. If an unauthorized user attempts to tailgate or enter from the opposite direction, the unit will recognize the illegal passage and the built in violation alarm will be activated.

Multiple infrared sensor arrays mounted inside the turnstile cabinets are used to monitor traffic through the turnstile and determine user position within the passageway.

Proximity Card Reader Device Envelope

Internal space is available for mounting of slim “mullion” or standard sized proximity card readers.

The internal space available is approximately 6” L x 6-5/8” W x 1-3/8” H.

Visual User Instruction

In the entry direction, the SU4000 includes a color TFT which has the ability to display user definable graphics, images and text (in supported formats) to notify the user of various card presentation and passage allowed / disallowed states. Images are downloadable to the SU4000 over a TCP/IP network using the turnstile control software.

Status Icons

In the exit direction, an illuminated status icon display is flush mounted within the cabinet lid and functions in the following manner:

Yellow Card Icon:	Turnstile is ready for card presentation.
Green Arrow Icon:	Passage is allowed in the direction indicated.
Red Stop Icon:	Passage is prohibited in the direction indicated.

Customized Audio User Instruction

The SU4000 provides user customizable card presentation sounds and durations based on an authorized “good card” signal or on an unauthorized “bad card” signal. Sounds are in the form of a .wav file and are downloadable to the SU4000 over a TCP/IP network using the turnstile control software.

Customized Violation Alarms

The SU4000 provides user customizable sounds and durations for the following alarm conditions:

Access Denied:	Blocked Sensor:
Crawl Violation:	Illegal or premature entry:
Tailgating:	

“Open” / “Closed” Status Lights

An LED light array is flush mounted within cabinet end panels. The timing and duration of the display is user definable and functions in the following manner:

Green:	Constantly Illuminated – the turnstile is “open” for use.
Red:	Constantly Illuminated – the turnstile is “closed” for use.
Green:	Flashing - the turnstile is in “free passage” mode.
Red:	Flashing – the turnstile has an alarm condition.

Barrier Cycle Time

Approximately 1 second; approximately 1.5 seconds for ADA width.

Power Failure

The barriers are fail-safe and open automatically upon loss of power to the unit.

Fire Alarm

Activation to open the barriers in conjunction with the fire alarm or other life safety system is achieved by supplying a sustained dry contact to the SU4000. Terminal strip connections are provided for this purpose.

Interface to Turnstile

Dry Contact:	Single passage activation for either direction of operation is achieved by supplying an isolated, voltage free, momentary dry contact. The length of contact is user definable and can be controlled through the turnstile control software. The type of input (normally open or normally closed) is user definable through the turnstile control software.
Custom:	Custom methods of integration (through an XML software interface) are available.
TCP/IP:	Many turnstile settings, including passage activation, can be controlled and monitored using Alvarado's GateKeeper turnstile control software. GateKeeper communicates to the SU4000 turnstile via TCP/IP. Refer to the GateKeeper specification for additional information.

Available Interface Inputs

The turnstile also has a number of available inputs. The length and type of input (normally open or normally closed) are user definable through the included Windows based control software. Terminal strip connections are provided for the following input signals:

Direction Closed:	No passage x 2.
Direction Open:	Free passage x 2.
Override Passage:	Override passage (guard override) x 2.
Passage Allowed:	Passage allowed (access granted) x 2.
Passage Denied:	Passage denied (access denied) x 2.
Alarm Reset:	Alarm reset x 2.
Auxiliary Input:	Auxiliary input x 2.
Diagnostic Mode:	Diagnostic mode x 2.
Disable Barrier:	Disable barrier x 1.
Emergency Override:	Emergency override x 1.
Service Input:	Service input x 1.

Available Interface Outputs

The turnstile also has a number of available outputs. The length and type of output (normally open or normally closed) is user defined through the turnstile control software. Terminal strip connections are provided for the following output signals:

Authorized Passage:	Authorized passage x 2.
Unauthorized Passage:	Unauthorized passage x 2.
Passage Override Confirmation:	Passage override confirmation x 2.
Close Override Confirmation:	Close override confirmation x 2.
Alarm Entry:	Alarm entry (general alarm) x 2.
Alarm Exit:	Alarm exit (general alarm) x 2.
Aborted Entry (Time Out):	Passage aborted or not completed x 2
Blocked Sensor:	Blocked sensor (trouble alarm) x 2.
Service Notification:	Service notification (notification of problem through diagnostics x 2.

Tailgate Sensitivity

Tailgate sensitivity settings can be changed through the turnstile control software.

Power Supply

120 VAC, 60 Hz

Power Rating

Maximum power consumption is 280 W per turnstile.

Operational Voltage

Primary power is stepped down and rectified for low voltage 48 VAC, 12 VDC, and 5 VDC operation.

Environment

Temperature, ambient operating: 0°C to +40°C; (+32°F to +104°F)

Temperature, non-operating and storage: -4°C to 40°C; (0°F to +104°F)

Humidity, ambient (non-condensing) operating: 5% to 90% RH

Humidity, ambient (non-condensing), non-operating and storage: 5% to 95% RH

Installation Details

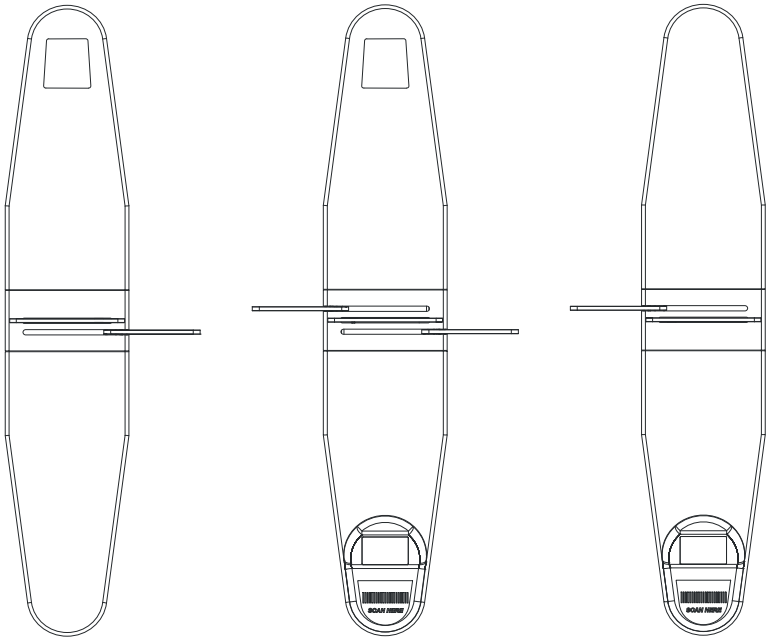
SU4000 turnstile cabinets are shipped fully assembled. Fork lift & pallet jack equipment is required for off loading.

Approximate Weight

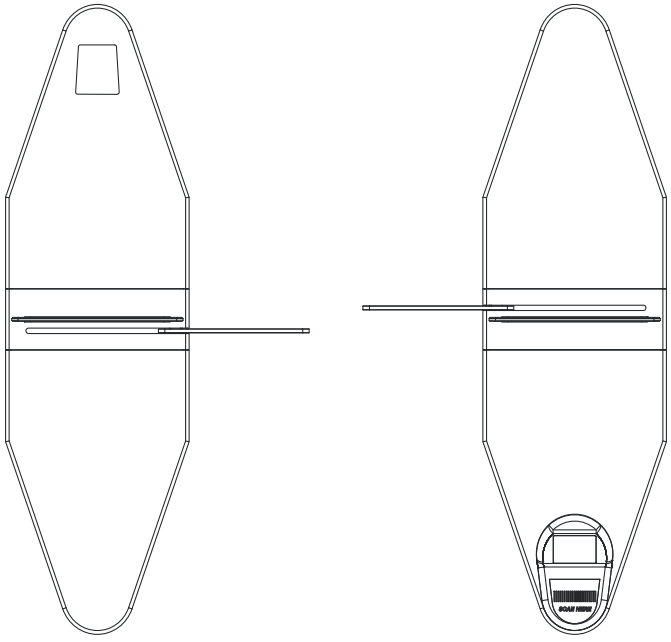
End Cabinet	approximately 478 lb. (217 Kg) per cabinet
Center Cabinet	approximately 508 lb. (230 Kg) per cabinet
ADA End Cabinet	approximately 580 lb. (263 Kg) per cabinet
ADA Center Cabinet	approximately 736 lb. (334 Kg) per cabinet

Cabinet Types Available

The SU4000 has two cabinet sizes: Standard and ADA



Left Cabinet ***Center Cabinet*** ***Right Cabinet***



ADA Left Cabinet ***ADA Right Cabinet***

User Instruction TFT Display - Entry Direction

The SU4000 has a TFT monitor in the entry direction, which displays custom media images (video and images in supported formats such as .jpeg) that synchronize with the lane operation. This functionality allows users to integrate the SU4000 turnstiles into the facility operation. Alvarado provides “standard” image screens and instructions that allow users to create custom image screens. Examples of images from installations are below:

User Instruction Icon - Exit Direction

Yellow Card

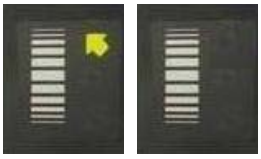
- Turnstile is ready for card presentation
- Present access control card to the reader for authorization
- Wait for the Green Arrow to illuminate and the barrier arms to open

Green Arrow

- Passage is allowed in the direction indicated
- Proceed through the turnstile

Red Stop

- Passage is prohibited in the direction indicated
- Wait for the Yellow Card to illuminate before presenting the next access control card to the card reader



Flashing Green Arrow

- Free passage is allowed in the direction indicated
- An access control card is not required in the direction indicated
- Proceed through the turnstile

End Lights

The end lights of the SU4000 provide direction to users approaching the turnstile and to adjacent personnel.

Permanently Lit Green Lights
- Turnstile is “open” for use
- Present access control card to the reader for authorization

Flashing Red Lights
- Turnstile is “closed for use”
- Or Alarm Condition Exists (see below)

Flashing Green Lights
- Turnstile is “open” for use
- Free passage is allowed in the direction indicated
- An access control card is not required in the direction indicated
- Proceed through the turnstile

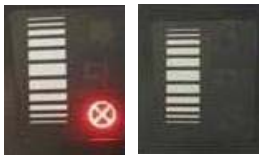
Alarm Conditions

The SU4000 alarms when certain events occur. An audio notification occurs through user definable sounds for the conditions. Visual notification is provided by the end lights and through user instruction in both the entry and exit directions. Alarms are available for the following scenarios:

- Unauthorized Passage
- Premature Entry
- Tailgating
- Loitering
- Crawl Violation
- Gate Crashing

When Alarm Sounds, Entry Direction TFT Screen Flashes Examples of Alarm Screens are Shown Below

When Alarm Sounds, Exit Direction User Instruction Icon Flashes



When Alarm Sounds, End Lights Flash

GateKeeper SU4000 Operator Control Software

Operator Interface

The SU4000 comes with turnstile control software that allows diagnostics and downloading of media and sounds to the SU4000 optical turnstiles. GateKeeper software can also be purchased which provides the ability to configure and control multiple SU4000's at an application, or a combination of SU4000's and other Alvarado optical turnstiles. Please contact Alvarado's technical support department about certain requirements in an application involving SU4000's and other Alvarado turnstiles.

The control software and GateKeeper is Windows based and communication is via TCP/IP over an Ethernet network. Wireless communication is available. The following describes the functionality of the turnstile control software and Gatekeeper ("Software")

Diagnostics : Turnstiles provide current operational status to the control software for viewing. The Software has the ability to deliver e-mail's regarding turnstile operational status.

Real Time Status: The Software maintains real time status of installed turnstiles, including:

- alarm condition monitoring and alarm alerts
- allows user (generally guard) to authorize passages
- allows user (an attendant or guard) to manually place in emergency override.

Passage and Operating Mode Changes: The Software allows changes to turnstiles, including:

- passage and operating mode status
- advanced settings such as blocked sensor time limit, alarm mode and duration, aborted passage time, physical orientation, tailgate sensitivity.

Download Display Media: The Software allows the download of custom media (video and images in supported formats) for display on the TFT display of individual or all turnstiles. It also allows the ability to synchronize the display of media with lane operation.

Download Audio: The Software allows the download of custom sounds (in the form of .wav files) to individual or all turnstiles. It also allows the ability to synchronize the sounds with lane operation.

Event Scheduler: The Software includes an integrated Event Scheduler application. This application enables changes to turnstile setting automatically, based on times and/or days of the week, allowing turnstile settings to be changed automatically. Facilities desire changes to turnstiles passage and operating modes based on times, days of the week and holidays and The Event Scheduler application accomplishes this automatically. A list of predefined templates is provided or a menu is provided to allow facilities to create their own templates.

Report: The Software maintains a detailed log of activity for 30 days. The log tracks alarms as well as all activities for the three levels of operation within the Software.

Software Access Levels: The Software has three password protected access levels. The levels are dependent on the responsibilities and personnel level of individual users.

Options

Alternative Cabinet Materials and Finishes

- Contact Alvarado for custom cabinetry made from fine wood or custom metal finishes.

Alternative Lid Colors and Materials

- Livingstone™ alternate colors *(see available colors at www.livingstonesurfaces.com)*
- Natural Granite *(contact Alvarado for availability)*

Alternate Power Supply

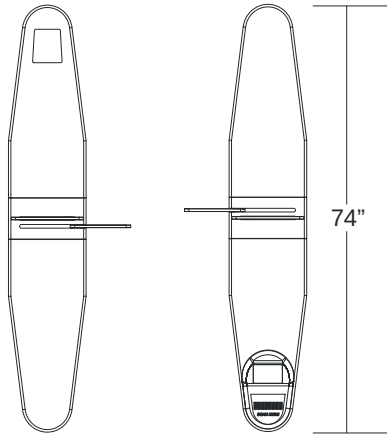
100/240 VAC, 50/60 Hz

TFT Both Directions

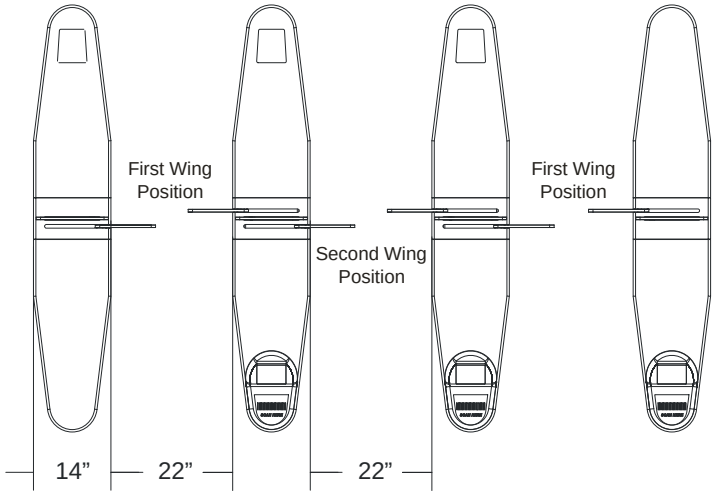
A color TFT is added for the exit direction.

SU4000 Standard Width Configuration

Single Standard Lane

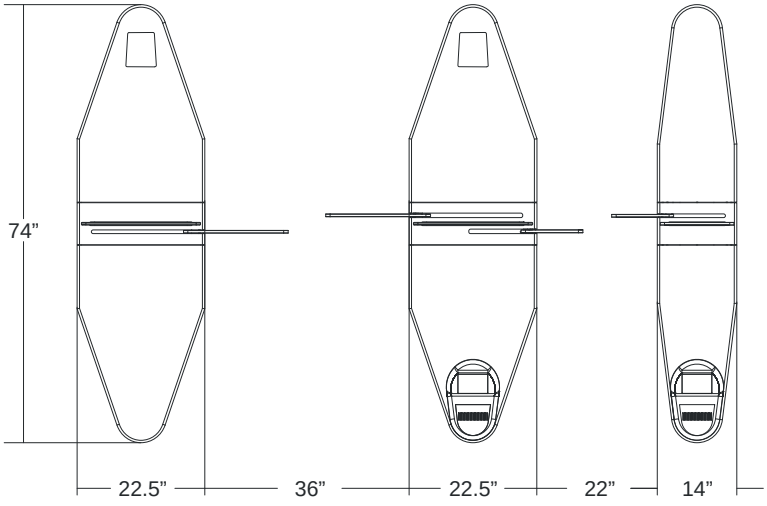


Multiple Standard Lanes



SU4000 ADA Width Configuration

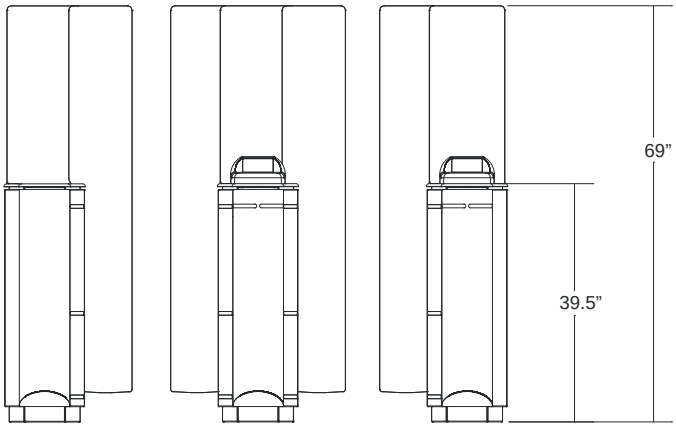
Multiple Lane ADA & Standard Width Combination



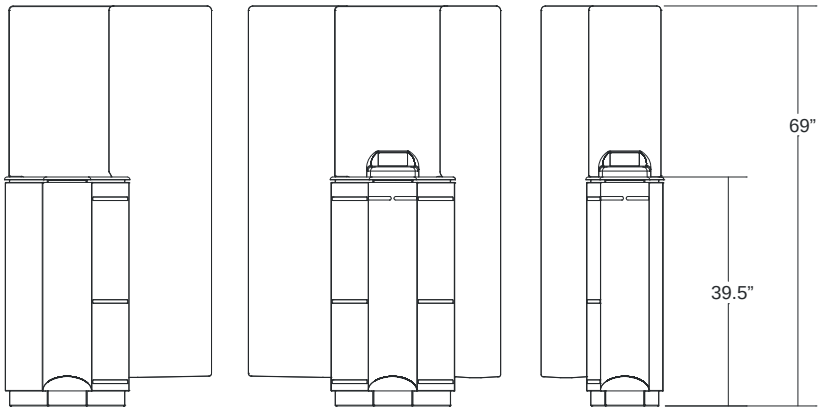
SU4000 Height Specifications

Standard and or ADA SU4000 units are the same height.

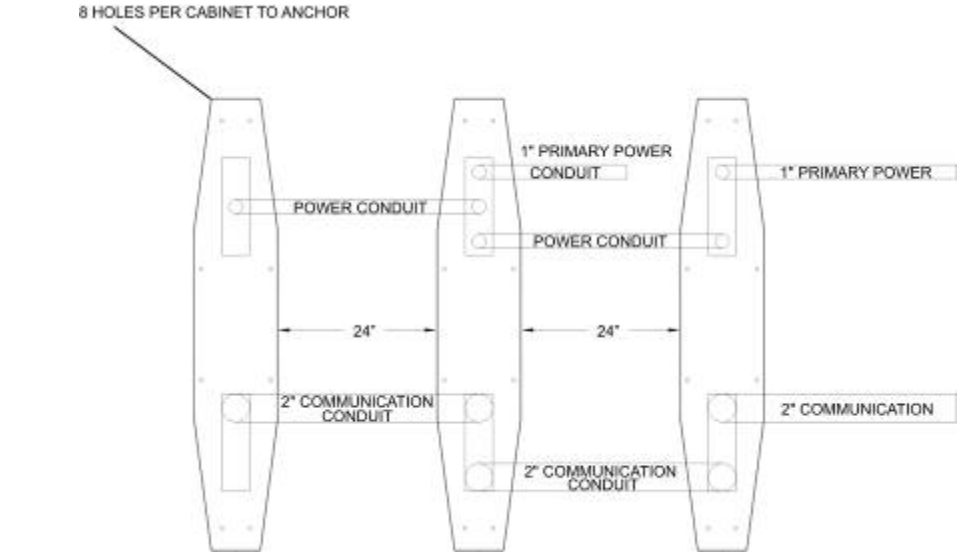
Standard Cabinets

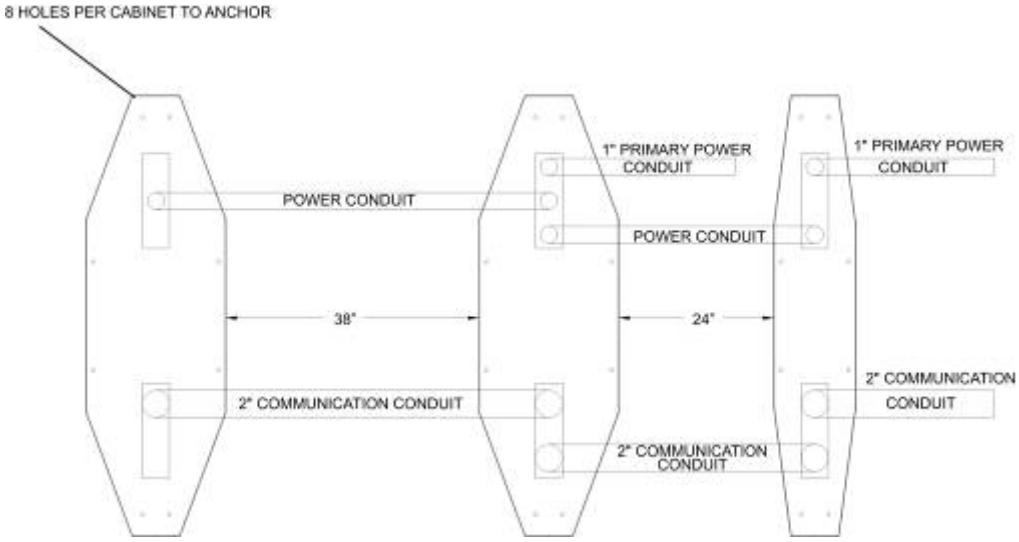


ADA & Standard Cabinet Combination



Conduit Requirements





NOTES:

1. Views shown are top down view of the base frame showing conduit locations. Dimensions do not include exterior cladding.

2. Primary power source conduit to be used for customer provided 110VAC or 220VAC power.

3. Communication conduit to be used for customer provided communication cable and for Alvarado lane-lane communication cable. Shielded cable recommended.

4. Lanes installed as shown will yield lane width of approximately 22” for standard width lanes and approximately 36” for ADA lanes. Dimensions between lanes can be adjusted slightly without affecting operation. Please contact Alvarado if dimensions will be adjusted more than ± 1”.

5. Be sure to consult application codes or statutes for local requirements.

High Voltage Power Conduit

- 1” power conduit for 120 VAC or 220 VAC primary power must be run to the ”master” and center cabinet.

Note: Standard ordering configuration is 110 VAC. 220 VAC is available by custom order.

Low Voltage Power Conduit

- 1” conduit must be run to interconnect the cabinet sets that form each passage lane.
- The low voltage power cables that run in the 1” low voltage conduit are provided with the turnstiles.
- Conduit that interconnects cabinet should not exceed 10’ in length.

Communication Conduit

- 2” conduit must be run to interconnect the cabinet sets that form each passage lane.
- The cables that run in the 2” communication conduit are provided with the turnstiles.
- Conduit that interconnects a cabinet set should not exceed 10’ in length. The interconnection cables are 20’ in length.

Access Control System Conduit

- Diagrams provided do not specify the conduit requirements for the access control system.
- Consult access control system provider for power and communication conduit specifications for integrating card readers or other access control system devices with turnstiles.

Slab Requirements

- Minimum thickness 4” (102 mm) level solid concrete pad
- Use a full sweep electrical conduit underneath the floor, one for power and another for communication, separated from each other.
- Cabinets must be installed perpendicular and flush with the floor while level to each other.

GateKeeper Turnstile Control Software

GateKeeper runs on a Windows PC or server and communicates to SU4000 turnstiles via TCP/IP.

Throughput Rates

Card Reader Device	Users per minute
Proximity	40
Magnetic Swipe	25
Magnetic Swipe with Numeric Keypad	20
Omni-directional Barcode Scanner	40

- Figures are approximations
- Flow rates may increase with enhanced user familiarity
- Access control / card reader system response time is assumed to be instantaneous

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